

JOHNS-MANVILLE



P R O D U C T S

Johns-Manville

Roofing and Siding

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IN this manual, Johns-Manville offers to architects and engineers, complete and comprehensive built-up roofing specifications covering the usual types of roof deck construction. These specifications are based on years of experience. They derive their authority from proven performances over long periods of time and under every weather condition. Johns-Manville—with the background of 88 years in the roofing industry—offers a definite specification for every roofing requirement. As the charts below show, Johns-Manville recommends Asbestos Smooth-Surfaced Flexstone Roofs on all inclines from $\frac{1}{2}$ " to 6". On roofs ranging from dead level to a pitch of not exceeding 2" to the foot, J-M Tar and Gravel Roofs may be used.

We have listed specifications for certain special type roofs but if you have an extraordinary condition not covered in this manual, please consult the nearest Johns-Manville office.

FLEXSTONE* ROOFS

section 1

TAR AND GRAVEL ROOFS

section 2

SPECIAL ROOFS

section 3

FLASHINGS

section 4

ROOF INSULATION

section 5

ANALYSIS CHART FOR JOHNS-MANVILLE FLEXSTONE BUILT-UP ROOFS

ON INCLINES $\frac{1}{2}$ " TO 6" PER FOOT

TYPE OF ROOF DECK	ROOFING	PAGE	BASE FELTS			FINISHING FELTS (ALL MOPPED)		LBS. OF ASPHALT PER SQUARE
			No. 50 Asphalt Saturated Asbestos Felt	No. 45 Asphalt Saturated Rag Felt	No. 30 Asphalt Saturated Rag Felt	No. 15 Asphalt Saturated Rag Felt	15 lb. Asphalt Saturated Asbestos Felt	
Over Wood Decks	Flexstone "Super A"	5	* 1 (Nail)				3	90
	Flexstone "Standard"	5	* 1 (Nail)				2	60
	Flexstone "Service"	5			1 (Nail)		2	60
Over Non-Combustible Decks (Including Nailable Types but Excluding Steel†)	Flexstone "Super A"	6	1 (Mop)				2	90
	Flexstone "Standard"	6		1 (Mop)			2	90
	Flexstone "Service"	6			1 (Mop)		2	90
Over Approved Roof Insulation	Flexstone "Super A"	7					4	130
	Flexstone "Standard"	7					3	100
	Flexstone "Service"	7				1	2	100

*If desired, J-M No. 45 Asphalt Saturated Rag Base Felt may be used instead of J-M No. 50 Asbestos Felt.

†On steel decks, roof insulation must first be installed.

ANALYSIS CHART FOR JOHNS-MANVILLE TAR AND GRAVEL (SLAG) BUILT-UP ROOFS

ON INCLINES NOT EXCEEDING 2" PER FOOT

TYPE OF ROOF DECK	ROOFING	PAGE	ROSIN SIZED SHEATHING PAPER	PLIES OF 15 LB. TAR SATURATED ASBESTOS* FELT		LBS. OF PITCH PER SQUARE
				(Nail)	(Mop)	
Over Wood Decks (Or Other Nailable Type Decks)	5 ply Tar and Gravel	8	1	2	3	150
	4 ply Tar and Gravel	8	1	2	2	125
Over Non-Combustible Decks (Excluding Steel†)	4 ply Tar and Gravel	9			4	200
or Over Approved Roof Insulation	3 ply Tar and Gravel	9			3	175

*J-M Tar Saturated Rag Felt may be used instead of J-M Tar Saturated Asbestos Felt.

†On steel decks, roof insulation must first be installed.

*Reg. U. S. Pat. Off.

NOTE: THESE SPECIFICATIONS DO NOT APPLY TO PACIFIC COAST AREAS. A SPECIAL PACIFIC COAST EDITION IS AVAILABLE ON REQUEST.

JOHNS-MANVILLE **FLEXSTONE** BUILT-UP ROOFS*Smooth-Surfaced • Asbestos*ON INCLINES $\frac{1}{2}$ " TO 6" PER FT.*Advantages of Flexstone Roofs*

Won't dry out from the sun • Made of fireproof and rotproof asbestos • Need no periodic coating • Upkeep expense minimized • No extra weight from slag • No clogging of drains or gutters • Actual roof can be seen • Easy to find and repair leaks • Built for long years of service

FLEXSTONE roofs combine the best in roofing materials, engineering practice and application methods to achieve a smooth-surfaced asbestos built-up roof which has no superior. Eighty-eight years of experience in the manufacture of roofing materials, and all the lessons Johns-Manville has learned over that period about the effects of time and weather on roofing, have gone into the making and building of this roof.

Today Flexstone roofs are protecting buildings all over this country and Canada. In many cases, they are still giving satisfactory service after 20, 25 and even 35 years.

Since Flexstone roofs are made of asbestos

felts, they have all the advantages of that ageless mineral. The result is literally a *flexible covering of stone*, which effectively resists the drying out action of the sun . . . will not support combustion . . . and is rotproof, long-lived and easy to maintain. It's economical in cost, too.

To insure proper and skilled application, Flexstone roofs are applied only by Johns-Manville Approved Roofers—roofers who have been carefully selected on the basis of experience, integrity and financial stability.

Designed to give full and lasting protection to the building and its contents, we believe that a smooth-surfaced, asbestos J-M Flexstone roof is the finest built-up roof that can be specified.

Johns-Manville



Fig. 1—Magnified Section of J-M Flexstone Roof.

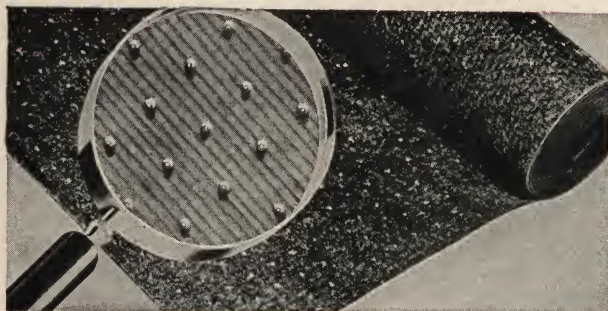


Fig. 2—Flexstone Felts are Perforated with Numerous Small Holes.

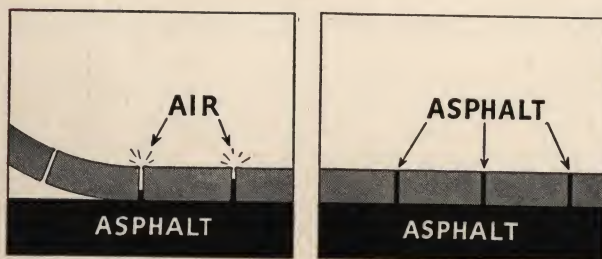
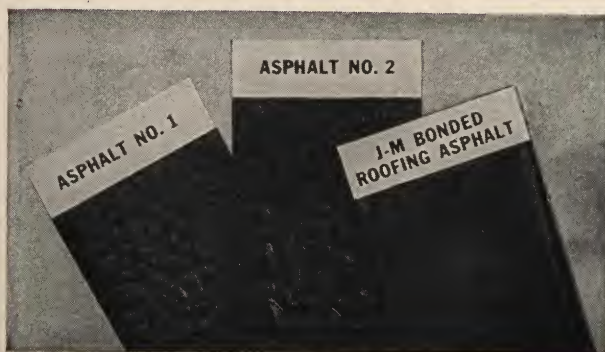


Diagram Shows How Perforations Allow Air to Escape.



After Tests J-M Bonded Asphalt Remained Practically Unchanged.

Why Asbestos Roofs Resist the Drying Out Action of the Sun

Fibres in ordinary roofing felts are hollow. Hence, they act as "wicks" which permit the sun to draw off the asphalt so essential to the life of the roofing felt. But, on the other hand, asbestos fibres are solid—no capillary action is possible and the fibres cannot act as a wick through which the asphalt may be drawn off. Note in illustration (figure one), which is a magnified section of a J-M Asbestos Flexstone roof, how the network of solid asbestos fibres in each ply protects the impregnated asphalt within the felt and at the same time, blankets the layer of asphalt below it.

Asbestos Felts Are Perforated to Make Application Easier and to Eliminate Blisters

As illustrated (figure two) J-M Asbestos Felt is made with millions of tiny perforations. This latest improvement in the manufacture of asbestos felt makes the felt more flexible. As a result, it lays smoother and conforms better to the irregularities of the roof deck. Each perforation serves as a check valve that opens upward. When the felt is laid in hot asphalt, these valves allow trapped air to escape. No air bubbles remain underneath—bubbles which might later develop into troublesome blisters. The hot asphalt "wells up" through the perforations, completely sealing them from below. The subsequent layer of asphalt then seals them from above.

Johns-Manville Uses a Specially Selected Grade of Asphalt

J-M Bonded Roofing Asphalt has proved to be superior to ordinary asphalts. Tested in the most modern types of weathering machines, Bonded Asphalt remained in virtually its original condition after being subjected to alternate cycles of heat, rain and freezing cold equivalent to ten years of actual service.

Grades of Flexstone Roofs

There are three grades of Flexstone roofs. The best, most durable and longest lived is the "Flexstone Super A". Where a less permanent roof will be satisfactory, or where budget restrictions exist, the "Flexstone Standard" or "Flexstone Service" are designed to give adequate protection.

THE SMOOTH-SURFACED ASBESTOS BUILT-UP ROOF

FOR APPLICATION OVER WOOD DECKS

ON INCLINES $\frac{1}{2}$ " TO 6" PER FT.

The Flexstone SUPER A Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Super A* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and vertical surfaces.

Application of Roofing

First: Lay one thickness of Johns-Manville No. 50 Asbestos* Base Felt, lapping the sheets 2" and nailing

at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 10" apart, the nails to be staggered.

Second: Over the base felt, lay three plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet 22" over the preceding one, mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per ply, per square, and nailing at 9" centers adjacent to the back edge.

Third: Coat entire surface uniformly with Johns-Manville Regal Roof Coating (1 gal. per square).

*Johns-Manville No. 45 Asphalt Saturated Rag Felt may be used instead of Johns-Manville No. 50 Asbestos Base Felt.

The Flexstone STANDARD Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Standard* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the *Super A* except change para-

graph "Second" under "Application of Roofing" to read:

Second: Over the base felt, lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet 17" over the preceding one, mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per ply, per square, and nailing at 9" centers adjacent to the back edge.

The Flexstone SERVICE Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Service* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the *Super A* except for the following changes: Change paragraph "First" under "Application of Roofing" to read:

First: Lay one thickness of Johns-Manville No. 30 Asphalt Saturated Rag Felt, lapping the sheets 2",

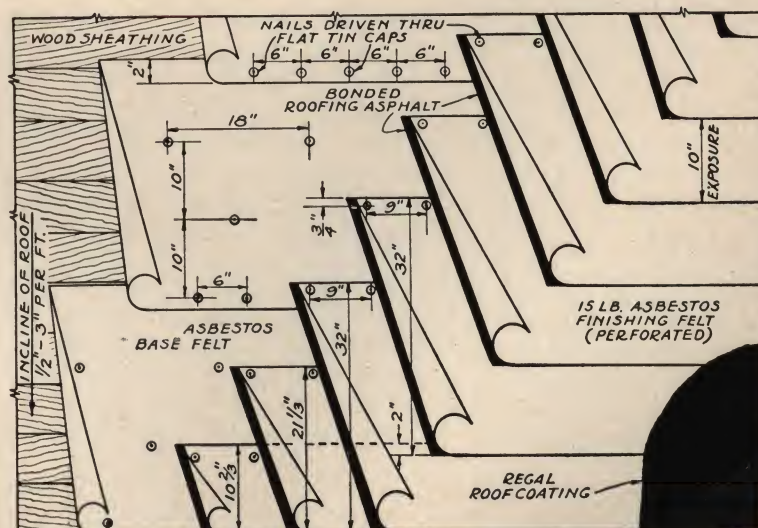
and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 11" apart, nails to be staggered.

Change paragraph "Second" to read:

Second: Over the base felt, lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet 17" over the preceding one, mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per ply, per square, and nailing at 9" centers adjacent to the back edge.

If a bond is required add the following: *The Approved Roofing Contractor shall furnish a Johns-Manville 20 year guarantee bond (for Super A Roof) or 15 year bond (for Standard Roof) or 10 year bond (for Service Roof).*

Drawing showing how a Johns-Manville Flexstone "Super A" Roof is applied over a wood deck with an incline of $\frac{1}{2}$ " to 3" per ft.



FOR APPLICATION OVER NON-COMBUSTIBLE DECKS (Including Nailable Types But Excluding Steel*)

ON INCLINES $\frac{1}{2}$ " TO 6" PER FT.

The Flexstone SUPER A Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone Super A Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and vertical surfaces.

Application of Roofing

First: Coat the entire surface with Johns-Manville Concrete Primer. On gypsum, where necessary, apply two coats, allowing each to dry. If deck is of pre-cast units, omit the primer 4" each side of all joints.

Second: Lay one thickness of Johns-Manville No. 50 Asbestos Base Felt, lapping the sheets 2", mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per square.

Third: If roof construction permits, nail at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 10" apart, the nails to be staggered. If deck is of precast units, the asphalt shall be omitted 4" each side of all joints. If deck is poured gypsum, the asphalt shall be applied by "spot-mopping."

Fourth: Over the base felt, lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet 17" over the preceding one, mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per ply, per square, and if roof construction permits, nailing at 9" centers adjacent to the back edge. With nailing strips provided, nail each sheet of the base felt at 6" centers at each nailing strip. Nail each sheet of the finishing felt at each nailing strip $\frac{3}{4}$ " from the back edge.

Fifth: Coat entire surface uniformly with Johns-Manville Regal Roof Coating (1 gal. per square).

The Flexstone STANDARD Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone Standard Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the Super A except change paragraph "Second" under "Application of Roofing" to read:

Second: Lay one thickness of Johns-Manville No. 45 Asphalt Saturated Rag Base Felt, lapping the sheets 2", mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per square.

The Flexstone SERVICE Roof

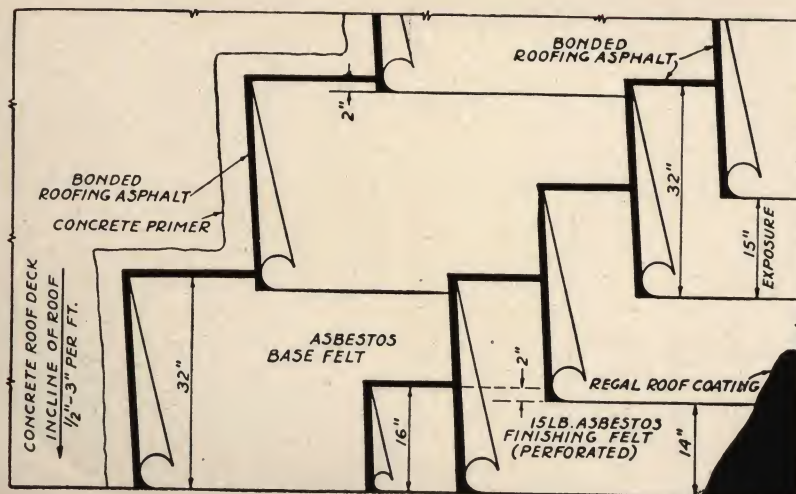
CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone Service Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the Super A except change paragraph "Second" under "Application of Roofing" to read:

Second: Lay one thickness of Johns-Manville No. 30 Asphalt Saturated Rag Felt, lapping the sheets 2", mopping the full width under each with 30 lbs. of Johns-Manville Bonded Asphalt per square.



If a bond is required add the following: The Approved Roofing Contractor shall furnish a Johns-Manville 20 year guarantee bond (for Super A Roof) or 15 year bond (for Standard Roof) or 10 year bond (for Service Roof).

* On steel decks, roof insulation must first be installed.

Drawing showing how a Johns-Manville Flexstone "Super A" Roof is applied over a non-combustible (concrete) deck with an incline of $\frac{1}{2}$ " to 3" per ft.

THE SMOOTH-SURFACED ASBESTOS BUILT-UP ROOF

FOR APPLICATION OVER APPROVED ROOF INSULATION

ON INCLINES $\frac{1}{2}$ " TO 6" PER FT.

The Flexstone SUPER A Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Super A* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Insulation on deck shall be properly applied to manufacturer's specifications, and be dry and clean. Cants shall be installed in the angles formed by the deck and vertical surfaces.

Application of Roofing

First: Lay four plies of Johns-Manville 15 lb. Asphalt

Saturated Asbestos Felts, lapping each sheet $24\frac{1}{2}$ " over the preceding one and mopping the full width under each with Johns-Manville Bonded Asphalt. Use 40 lbs. asphalt per square for mopping directly onto insulation, and 30 lbs. per ply, per square for subsequent moppings.

Second: If pitch of roof exceeds 3" to the foot and roof construction permits, nail each sheet of the felt at 9" centers adjacent to the back edge. With nailing strips provided as required, nail each sheet of the felt at each nailing strip, all nails to be placed so as to be covered by not less than two plies of felt.

Third: Coat entire surface uniformly with Johns-Manville Regal Roof Coating (1 gal. per square).

The Flexstone STANDARD Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Standard* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the *Super A* except change para-

graph "First" under "Application of Roofing" to read:

First: Lay three plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts, lapping each sheet 22" over the preceding one and mopping the full width under each with Johns-Manville Bonded Asphalt. Use 40 lbs. asphalt per square for mopping directly onto insulation, and 30 lbs. per ply, per square for subsequent moppings.

The Flexstone SERVICE Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Flexstone *Service* Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

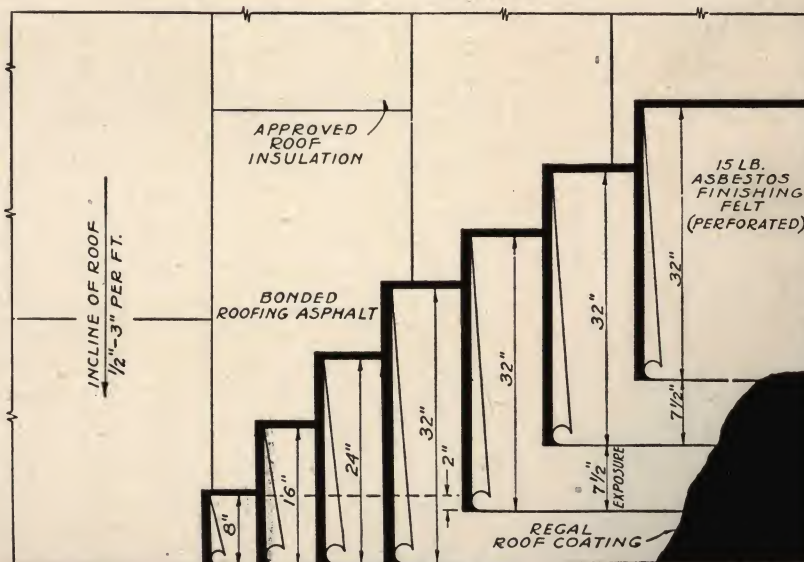
Exactly the same as the *Super A* Specification except change paragraph "First" under "Application of Roofing" to read:

First: Lay one ply of Johns-Manville No. 15 Asphalt Saturated Rag Felt lapping the sheets 2", mopping the full width under each with asphalt. Over the rag felt lay two plies of Johns-Manville 15 lb. Asphalt Saturated Asbestos Felts lapping each sheet 17" over the preceding one and mopping the full width under each with Johns-Manville Bonded Asphalt. Use 40 lbs. asphalt per square for mopping directly onto insulation, and 30 lbs. per ply, per square for subsequent moppings.

If a bond is required add the following: *The Approved Roofing Contractor shall furnish a Johns-Manville 20 year guarantee bond (for Super A Roof) or 15 year bond (for Standard Roof) or 10 year bond (for Service Roof).*

NOTE: Johns-Manville roof insulation may be applied to any type roof deck. For specifications see Section 5 of this manual.

Drawing showing how a Johns-Manville Flexstone "Super A" Roof is applied over Johns-Manville or other approved roof insulation when the deck incline is $\frac{1}{2}$ " to 3" per ft.



FOR APPLICATION OVER WOOD (Or Other Nailable Type) DECKS

FOR INCLINES NOT EXCEEDING 2" PER FT.

The 5 Ply Tar and Gravel Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 5 Ply Tar and Gravel Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces.

Application of Roofing

First: If over wood sheathing, lay one thickness of Johns-Manville (25 lb. to 500 sq. ft.) rosin size sheathing, lapping the sheets not less than one inch.

Second: Lay two plies of Johns-Manville 15 lb. Tar Saturated Asbestos Felt* lapping each sheet 17" over

the preceding one and nailing sufficiently to hold in place.

Third: Over these felts lay three additional plies of Johns-Manville 15 lb. Tar Saturated Asbestos Felt*, lapping each sheet 22" over the preceding one, mopping the full width under each with Johns-Manville Bonded Pitch and nailing at 24" centers adjacent to the back edge.

Fourth: Over the entire surface pour a uniform coating of Johns-Manville Bonded Pitch and imbed therein, while hot, not less than 400 lbs. of gravel, or 300 lbs. of slag, for each 100 square feet of surface.

General: Not less than 150 lbs. of pitch should be used for constructing each 100 square feet of completed roof. (If a bond is required, add the following.) The Approved Roofing Contractor shall furnish a Johns-Manville 20 year guarantee bond.

The 4 Ply Tar and Gravel Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 4 Ply Tar and Gravel Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Exactly the same as the 5 Ply Tar and Gravel Roof except for the following changes:

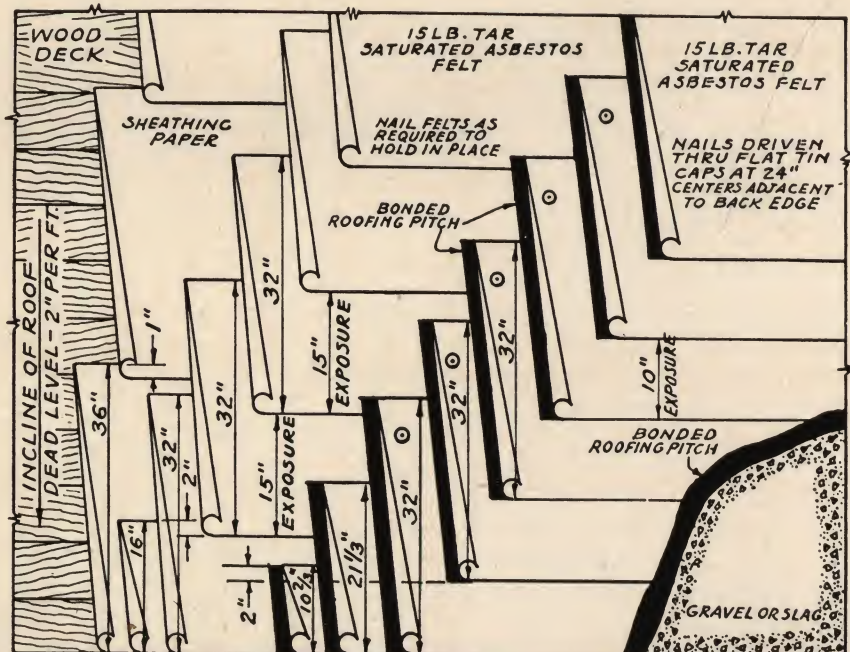
Paragraph "Third" under "Application of Roofing" should read:

Third: Over these felts, lay two additional plies of Johns-Manville 15 lb. Tar Saturated Asbestos Felt*, lapping each sheet 17" over the preceding one, mopping the full width under each with Johns-Manville Bonded Pitch and nailing at 24" centers adjacent to the back edge.

Under General: Change "150 lbs. of pitch" to "125 lbs. of pitch." Change "20 year guarantee bond" to "15 year guarantee bond".

*While the use of asbestos felts is preferable, Johns-Manville 15 lb. Tar Saturated Rag Felt may be used instead of Johns-Manville 15 lb. Asbestos Felt.

Drawing showing how a Johns-Manville 5-Ply Tar and Gravel Roof is applied over a wood or other nailable type deck.



FOR APPLICATION OVER NON-COMBUSTIBLE (Excluding Nailable Type and Steel*) DECKS OR OVER APPROVED ROOF INSULATION

FOR INCLINES NOT EXCEEDING 2" PER FT.

The 4 Ply Tar and Gravel Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 4 Ply Tar and Gravel Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces. If over roof insulation, insulation shall be properly applied to manufacturer's specifications, and be dry and clean.

Application of Roofing

First: Lay four plies of Johns-Manville 15 lb. Tar Saturated Asbestos Felt,** lapping each sheet 24½"

over the preceding one, mopping the full width under each with Johns-Manville Bonded Pitch. If roof construction is of precast units, the pitch applied to the roof surface shall be omitted for a width of 4" each side of all joints between the units. If incline exceeds 1" per ft., the felt shall be nailed adjacent to upper edge so that all nails shall be covered by not less than three layers of felt.

Second: Over the entire surface, pour a uniform coating of Johns-Manville Bonded Pitch, and imbed therein, while hot, not less than 400 lbs. of gravel, or 300 lbs. of slag for each 100 ft. of roof surface.

General: Not less than 200 lbs. of pitch should be used for constructing each 100 square feet of completed roof. (If a bond is required, add the following.) The Approved Roofing Contractor shall furnish a Johns-Manville 20 year guarantee bond.

The 3 Ply Tar and Gravel Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville 3 Ply Tar and Gravel Roof applied in accordance with the manufacturer's specifications, and all work shall be done by a roofing contractor approved by the manufacturer.

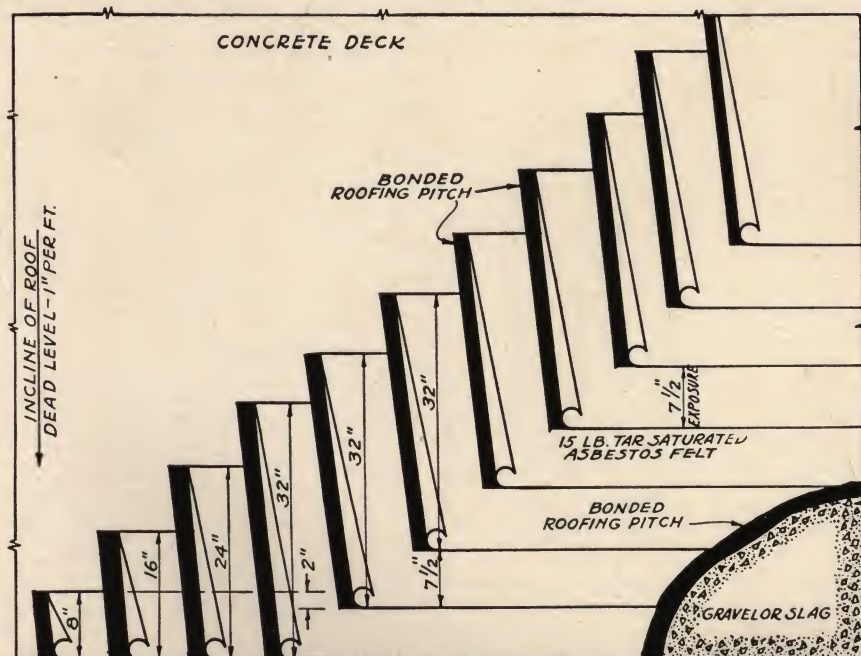
COMPLETE SPECIFICATION

Exactly the same as the 4 Ply Tar and Gravel Roof except for the following changes: Paragraph "First" under "Application of Roofing" should read:

First: Lay three plies of Johns-Manville 15 lb. Tar Saturated Asbestos Felt,** lapping each sheet 22"

over the preceding one, mopping the full width under each with Johns-Manville Bonded Pitch. If roof construction is of precast units, the pitch applied to the roof surface shall be omitted for a width of 4" each side of all joints between the units. If incline exceeds 1" per ft. the felt shall be nailed adjacent to upper edge so that all nails shall be covered by not less than two layers of felt.

Under General: Change "200 lbs. of pitch" to "175 lbs. of pitch". Change "20 year guarantee bond" to "15 year guarantee bond".



*On steel decks, roof insulation must be installed.

**While the use of asbestos felts is preferable, Johns-Manville 15 lb. Tar Saturated Rag Felt may be used instead of Johns-Manville 15 lb. Asbestos Felt.

Drawing showing how a Johns-Manville 4-Ply Tar and Gravel Roof is applied over a non-combustible (except steel) deck or over approved roof insulation on deck inclines not exceeding 1" per ft.

WITH A COLORED MINERAL SURFACE

Many times it is desirable, for the sake of appearance, to have color in a built-up roof. In the following Specifications, Johns-Manville Split Sheet Slatekote Roofing is specified for the finishing felts. Since Split Sheet Slatekote

is surfaced with red, green or black mineral granules, it presents an attractive, colorful appearance. The mineral granules also serve to protect the felts against the drying out action of the sun.

FOR APPLICATION OVER WOOD DECKS

ON INCLINES 3" to 6" PER FT.

The Split Sheet Slatekote Built-Up Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Split Sheet Slatekote Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces.

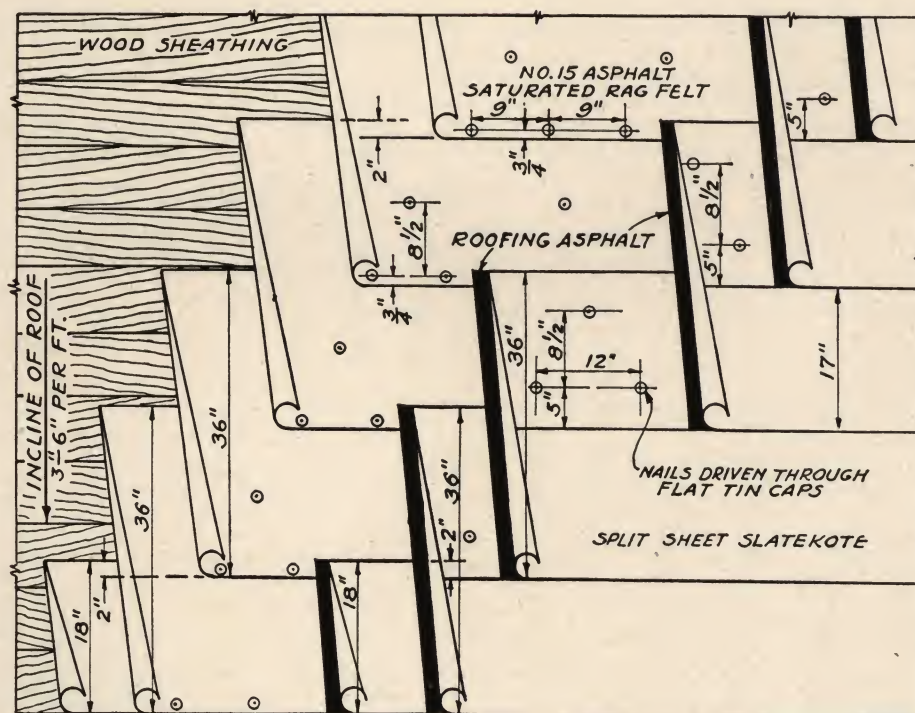
Application of Roofing

First: Lay two plies of the No. 15 felt, lapping each sheet 19" over the preceding one and nailing at 9" centers adjacent to exposed edge and at 9" centers,

8 1/2" therefrom, the nails in each row to be in staggered relation.

Second: Over these felts lay the Slatekote, lapping each sheet 19" over the selvaged edge of the preceding one, mopping the full width under each with the asphalt and nailing through the selvaged portion with two rows of nails 8 1/2" apart, the first row to be 5" from the edge of the slate surfacing, nails to be spaced at 12" centers, the nails in each row to be in staggered relation. Lap the ends of the sheets 6". Scrape the slate surfacing from the overlapped portions of the underlying sheet, nail at 6" centers, 2" from the edge, and mop the full width of the lap with the asphalt.

If a bond is required add the following: *The Approved Roofing Contractor shall furnish a Johns-Manville 10-year guarantee bond.*



Drawing showing how a Johns-Manville Split Sheet Slatekote Built-Up Roof is applied over a wood deck.

FOR APPLICATION OVER NON-COMBUSTIBLE DECKS (Including Nailable Types But Excluding Steel*)

ON INCLINES 3" to 6" PER FT.

The Split Sheet Slatekote Built-Up Roof

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Split Sheet Slatekote Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. Cants shall be installed in the angles formed by the deck and adjoining vertical surfaces.

Application of Roofing

First: Coat all surfaces which are to receive the roofing with the primer and allow to dry. If deck is of precast units, the primer shall be omitted 4" each side of all joints.

Second: Lay one ply of the No. 15 felt, lapping the sheets 3", mopping the full width under each with the asphalt, and, if roof construction permits, nailing at 12" centers through the laps. If deck is of precast units, the asphalt shall be omitted 4" each side of all joints. If poured-gypsum deck, the asphalt shall be

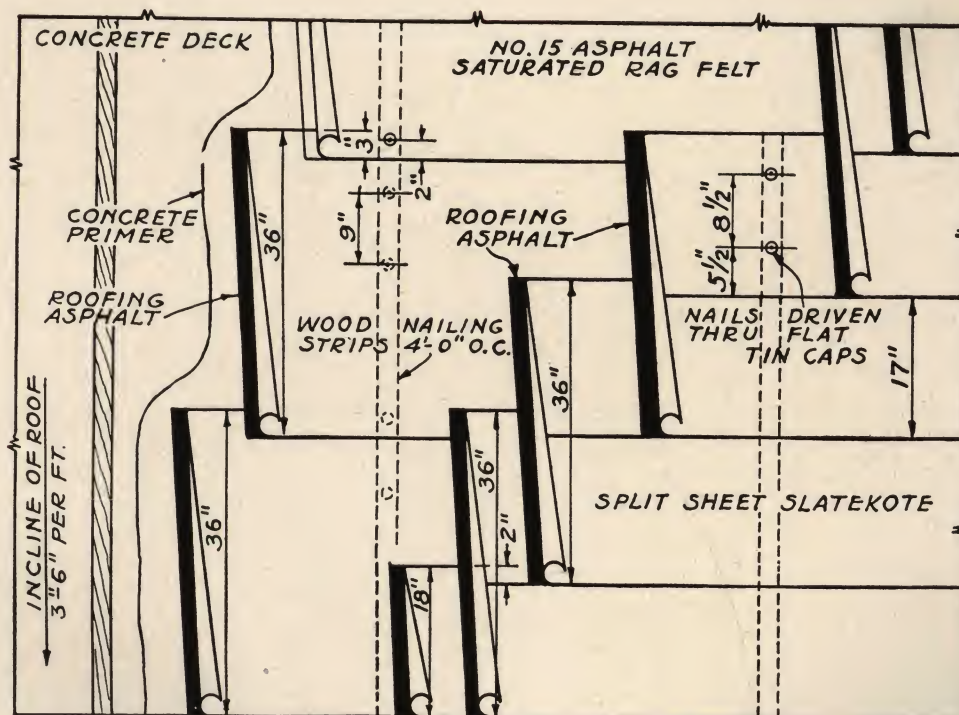
applied by "spot-mopping."

Third: Over the No. 15 felt lay two plies of the Slatekote, lapping each sheet 19" over the unsurfaced portion of the preceding one, mopping the full width under each with asphalt, and, if roof construction permits, nailing through the unsurfaced portion in two lines spaced 8½" apart, the first line to be 5" from the edge of the slate surfacing, the nails to be spaced at 12" centers and staggered. Lap the ends of the sheets 6". Scrape the slate surfacing from the overlapped portion of the underlying sheet, nail at 6" centers, 2" from the edge, and mop the full width of the lap with asphalt.

With nailing strips provided as required, nail each sheet of the No. 15 felt at 9" centers at each nailing strip. Nail each sheet of the Slatekote through the unsurfaced portion with two nails at each nailing strip, spaced at 8½" centers, the first to be 5" from the edge of the slate surfacing.

If a bond is required add the following: *The Approved Roofing Contractor shall furnish a Johns-Manville 10-year guarantee bond.*

*On steel decks, roof insulation must first be installed.



Drawing showing how a Johns-Manville Split Sheet Slatekote Built-Up Roof is applied over a non-combustible deck.

FOR APPLICATION OVER CONCRETE DECKS TO BE OVERLAID WITH PROMENADE SURFACING

ON INCLINES NOT EXCEEDING 1" PER FT.

CONDENSED SPECIFICATION

Roofing: Shall be a Johns-Manville Built-Up Roof applied in accordance with the manufacturer's specifications, and the work shall be done by a roofing contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean and properly graded to outlets.

Application of Roofing

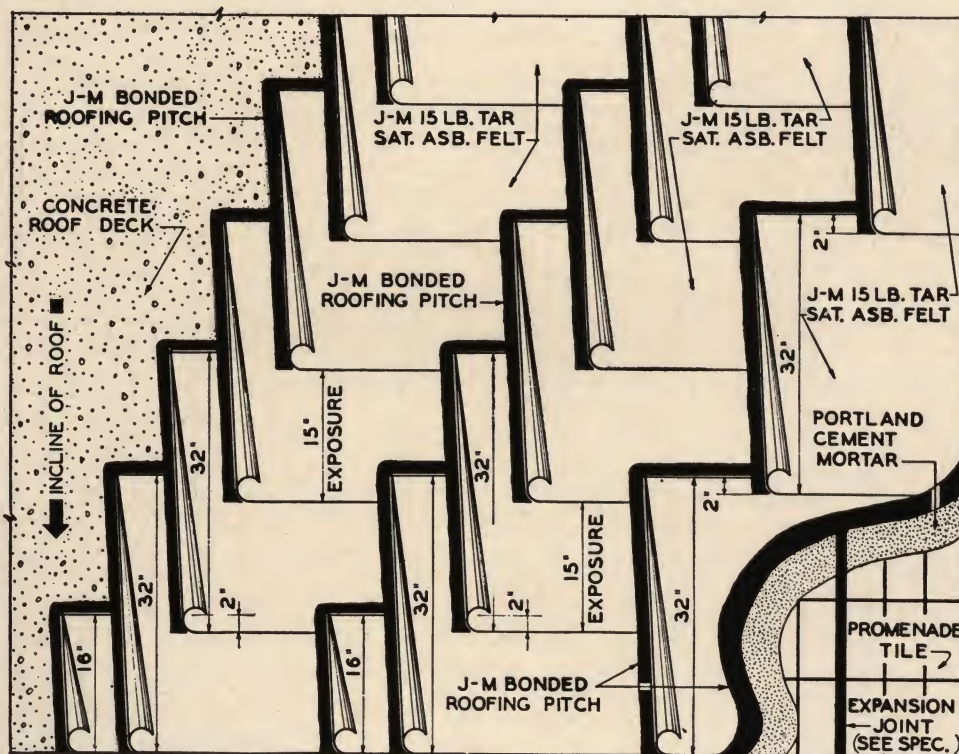
First: Lay two plies of Johns-Manville 15 lb. Tar Saturated Asbestos Felt, lapping each sheet 17" over the preceding one, mopping the full width under each with Johns-Manville Bonded Pitch. Then apply two additional layers of the felt, lapping each sheet 17" over the preceding one, mopping the full width under each with the pitch.

Immediately preceding the laying of the promenade

tile or other surfacing material, thoroughly clean the roof surface and lay one additional ply of Johns-Manville Tar Saturated Asbestos Felt, lapping each sheet 2" over the preceding one, mopping the full width under each with Johns-Manville Bonded Pitch. Then coat the entire surface with the pitch. No more of the roof surface shall be covered with the last ply of felt and pitch than can be immediately covered with the surfacing material.

Second: Lay the promenade surfacing in a bedding of Portland cement mortar not less than 1" thick, with expansion joints in both directions on not greater than 20 ft. centers, and also at all walls, curbs and other vertical surfaces. Expansion joints shall be not less than 1" wide and shall extend from the top of the surfacing through the mortar bed to the roofing, filled with Johns-Manville Expansion Joint Filler. All joints between the surfacing, other than expansion joints, shall be grouted with Portland cement mortar.

General: All flashing shall be of sheet metal.



Drawing showing how a Johns-Manville Built-Up Roof is applied over a concrete deck which is to be overlaid with a promenade surfacing.

The Johns-Manville Asbestile* System of Flashing . . . Insures Proper Treatment of All Critical Areas

More than any other place on the roof a leak is apt to develop at the junction formed by the roof deck and a vertical surface. To give the required degree of protection at such points, Johns-Manville has developed the Asbestile System of Flashing. Asbestile is a

heavy-bodied plastic cement designed to give thorough water tightness where used in conjunction with asbestos flashing felts. As Asbestile sets, it becomes hard and forms an integral part of the wall itself. Johns-Manville offers two methods of Asbestile Flashing:

1. The Johns-Manville *Thru-Wall* Asbestile Flashing System
2. The Johns-Manville *Standard* Asbestile Flashing System

THE THRU-WALL ASBESTILE FLASHING SYSTEM

**THIS IS OUR NUMBER ONE RECOMMENDATION AND SHOULD BE
USED WHEREVER POSSIBLE**

CONDENSED SPECIFICATION

All flashings shall be applied in accordance with the Johns-Manville Thru-Wall Asbestile Flashing System, and shall be installed by a contractor approved by the manufacturer. Cap flashing shall be extended (architect to specify "through the wall" or "up and over the parapet wall").

COMPLETE SPECIFICATION

Base Flashing

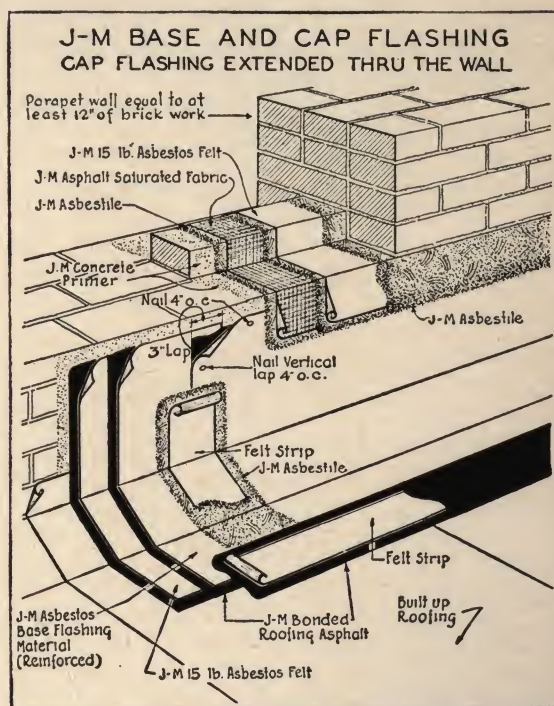
First: Strike a chalk line 3" above top of base flashing and prime the wall to this line. Allow the primer to dry.

Second: Lay one thickness of the Johns-Manville 15 lb. Asphalt Saturated Asbestos Felt to extend not less than 6" high on the vertical surface to be flashed, and not less than 4" on the roof, lapping the sheets 3", mopping the full width under each with Johns-Manville Bonded Asphalt.

Third: Johns-Manville Reinforced Asbestos Base Flashing shall then be mopped on the fabric side with asphalt and pressed immediately into place directly over and entirely covering the 15 lb. asbestos felt. Nail the top edge into brick joints or wood nailing strips, at not to exceed 4" centers horizontally. The base flashing shall be applied to extend not less than 6" high on the vertical surfaces and not less than 4" on the roof. Such dimensions shall be measured from the top and bottom edges, respectively, of cants, coves or fillets.

The ends of the sheets shall be lapped not less than 3", nailing not to exceed 4" centers vertically, cemented and covered with $\frac{1}{8}$ " course of Johns-Manville Asbestile with a 4" wide strip of the Johns-Manville 15 lb. Asbestos Felt imbedded therein and finished with a second course of Asbestile troweled on. The edges of the base flashing on roof shall be covered with a 4"

wide Johns-Manville 15 lb. Asbestos Felt strip, imbedded in and coated over with asphalt but shall not be nailed to the deck.



Drawing showing how Johns-Manville Thru-Wall Asbestile System of Flashing (base and cap) is applied when extended through the wall.

*Reg. U. S. Pat. Off.

Thru-Wall Asbestile Flashing System (Cont.)

Cap Flashing Extending Through the Wall (For New Work)

Mop the top of the wall with Johns-Manville Bonded Asphalt or trowel a $\frac{1}{8}$ " thickness of Johns-Manville Asbestile to within 2" of outside face of wall and imbed one ply of Johns-Manville Waterproofing Fabric. Provide sufficient fabric so that same will overhang wall and later overlap base flashing at least 4". Then, over the fabric, apply another mopping of asphalt or troweling of Asbestile, into which imbed one ply of Johns-Manville 15 lb. Asbestos Felt. The felt shall be of sufficient width to cover top of wall to within 2" of outside face and to overhang inside face of wall to later overlap base flashing at least 4". Over this felt on top of wall, apply a finished mopping of asphalt or a $\frac{1}{8}$ " troweling of Asbestile.

After the parapet is completed, the overhanging fabric and felt shall be brought down over the base flashing in the following manner:

First, coat vertical wall with $\frac{1}{8}$ " troweling of Asbestile to extend down over base flashing at least 4". Then imbed the overhanging fabric into this troweling of Asbestile. Apply over the fabric a second troweling of Asbestile, into which imbed the overhanging felt. Trowel over the felt a final coating of Asbestile, bringing it to a feather edge over the base flashing and to a straight line at the top edge of the projecting felt.

The face of base and cap flashing shall be coated with Johns-Manville Regal* Roof Coating to extend from the roof surface to the top edge of the projecting felt.

Cap Flashing Extending Up and Over Masonry Parapet Wall (For Existing Work)

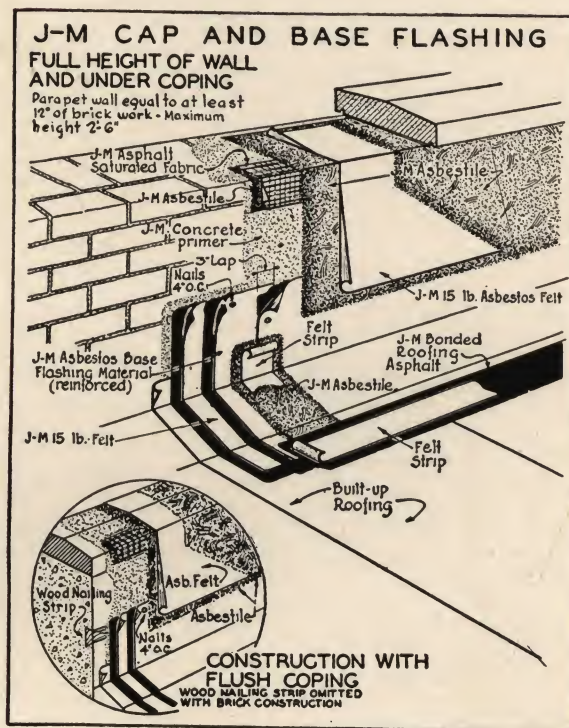
At the inner top corner of parapet, imbed in Johns-Manville Asbestile an 8" wide strip of Johns-Manville Waterproofing Fabric so that same extends 4" on top of the wall and 4" on face of wall.

A layer of Asbestile, $\frac{1}{8}$ " thick, shall then be troweled over the inside face of the wall, extending down to a point 4" below the top edge of base flashing and

continued over the top of wall to within 2" of outside face. A ply of Johns-Manville 15 lb. Asbestos Felt shall be imbedded therein, with sheets lapped 3" and sealed with a layer of Asbestile.

Over this felt, apply a second $\frac{1}{8}$ " layer of Asbestile, troweled over and finished to a feather edge and to a straight line at lower edge, extending below top of base flashing at least 4".

The face of the base and cap flashing shall be coated with Johns-Manville Regal Roof Coating to extend from the roof surface to the under side of the coping.



Drawing showing how Johns-Manville Thru-Wall Asbestile System of Flashing (base and cap) is applied when extended up the parapet and over or under the coping.

*Reg. U. S. Pat. Off.

THE STANDARD ASBESTILE FLASHING SYSTEM

THIS FLASHING METHOD IS SECOND ONLY TO THE THRU-WALL SYSTEM AND CAN BE USED FOR BOTH NEW AND EXISTING WORK. IT IS DESIGNED FOR USE WHERE CONDITIONS DO NOT WARRANT THE APPLICATION OF THE THRU-WALL FLASHING SYSTEM

CONDENSED SPECIFICATION

All flashings shall be applied in accordance with the Johns-Manville Standard Asbestile Flashing System and shall be installed by a contractor approved by the manufacturer.

COMPLETE SPECIFICATION

Base Flashing

First: Strike a chalk line 3" above top of base flashing and prime the wall to this line. Allow the primer to dry.

The surface of the roof and adjoining surfaces which are to receive the base flashing shall be mopped with Johns-Manville Bonded Asphalt which is not to extend above top of base flashing.

Second: Johns-Manville Reinforced Asbestos Base Flashing shall then be mopped on the fabric side with asphalt and pressed immediately into place, nailing the top edge into brick joints or wood nailing strips, at not to exceed 4" centers horizontally. The base flashing shall be applied to extend not less than 6" high on the vertical surfaces and not less than 4" on the roof. Such dimensions shall be measured from the top and bottom edges, respectively, of cants, coves or fillets.

The ends of the sheets shall be lapped not less than 3", nailing not to exceed 4" centers vertically, cemented and covered with $\frac{1}{8}$ " Course of Johns-Manville Asbestile with a 4" wide strip of Johns-Manville 15 lb. Perforated Asbestos Felt imbedded therein and finished with a second course of Asbestile troweled on. The edge of the base flashing on roof shall be covered with a 4" wide Johns-Manville 15 lb. Perforated Asbestos Felt strip, imbedded in and coated over with asphalt but shall not be nailed to the deck.

Drawing showing how Johns-Manville Standard Asbestile System of Flashing (base and cap) is applied.

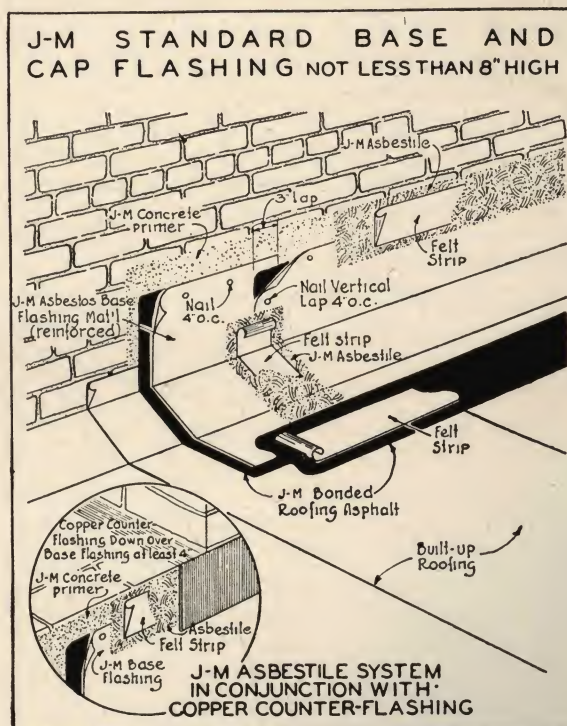
Cap Flashing

Combined cap and base flashing should be not less than 8" high.

Trowel on a layer of Johns-Manville Asbestile 5" wide and $\frac{1}{8}$ " thick, to cover completely the nails on top of the Johns-Manville Base Flashing. Into this imbed a 4" wide strip of Johns-Manville 15 lb. Asbestos Felt, over which apply another $\frac{1}{8}$ " troweling of Asbestile.

Bring the Asbestile to a feather edge and finish it neatly in a straight line.

The face of the flashing shall be coated with Johns-Manville Regal Roof Coating to extend from the roof surface to the top of the cap flashing.



Johns-Manville Roof Insulation Pays for Itself

TODAY, these five advantages of roof insulation are well recognized by architects and engineers.

- 1—Roof insulation retards the passage of heat through the roof; this saves fuel and cuts air-conditioning costs.
- 2—Insulation helps insure comfortable, uniform working conditions and hence increases production.
- 3—Insulation helps protect the roof deck against deterioration and rot which may eventually result in the costly necessity of building a completely new roof deck.
- 4—An insulated roof prevents condensation and roof drip which may ruin finished ceilings and walls, and even damage equipment and stocks of merchandise.
- 5—Insulation provides protection to the roofing felts. It acts as a "cushion" separating the roofing from the deck and therefore helps prevent the felts from cracking due to the cycles of alternate expansion and contraction in the deck.

It can be readily perceived that these various savings in operating costs, increased efficiency, protection of the building structure and of the roofing felts, will in a short time offset the initial cost of the roof insulation and then continue to pay substantial dividends during the entire life of the roof.

Johns-Manville Furnishes Two Types of Roofing Insulation

JOHNS-MANVILLE ROCK CORK* INSULATION which is basically a mineral insulation that cannot rot or decay. It is exceptionally efficient and moisture resistant.

JOHNS-MANVILLE ROOFINSUL*, a rigid and structurally strong insulation, made of saturated pine fibre, interlaced, felted and rolled into boards of practical size. It provides a light weight, efficient, low cost roof insulation for all types of roof decks.

Johns-Manville specifications for the application of roof insulation have been carefully drawn to insure that it will retain its initial efficiency throughout the lifetime of the roof. Specifications call for the insulation to be sealed below and above from moisture that would cause loss of efficiency.

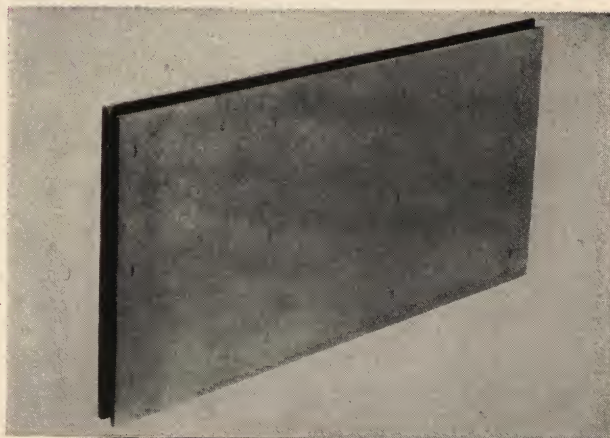
*Reg. U. S. Pat. Off.



Here Johns-Manville Roofinsul is Being Applied.



Johns-Manville Rock Cork Cannot Rot or Decay.



Johns-Manville Roofinsul is Rigid and Structurally Strong.

Note: In these specifications when Johns-Manville Flexstone roofs are specified over the insulation, use J-M Asphalt Saturated Asbestos Felts and J-M Bonded Asphalt (the cementing agent) *under* the insulation.

When Johns-Manville Tar and Gravel Roofs are

specified over the insulation, use J-M Tar Saturated Asbestos Felts and Bonded Pitch (the cementing agent) *under* the insulation, except over steel decks. Here Asphalt Saturated Asbestos Felts and Bonded Asphalt are used *under* the insulation even though the finished roof is to be Tar and Gravel.

FOR APPLICATION OF JOHNS-MANVILLE ROOF INSULATION OVER WOOD DECKS

ON INCLINES UP TO 6" PER FT.

CONDENSED SPECIFICATION

Insulation shall be Johns-Manville Roof Insulation (state type and thickness), applied in accordance with the manufacturer's specifications.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets.

Application of Roof Insulation

First: A wood strip of the same thickness as the insulation by approximately 4" wide shall be provided, secured to the roof deck adjoining all eaves, to act as a stop for the insulation.

Second: Under insulation lay one ply of Johns-Manville 15 lb. Felt, lapping each sheet 6" over the preceding one and nailing sufficiently to hold in place. If a tar and gravel roof is to be applied over the insulation on a wood deck, under the insulation lay one thickness of Johns-Manville (25 lbs. to 500 sq. ft.) rosin sized sheathing. Then lay two plies of Johns-Manville 15 lb. Tar Saturated Asbestos Felt, lapping each sheet 17" over the preceding one, nailing sufficiently to hold in place. The felt shall be turned up on, but not cemented to, all vertical surfaces to a height

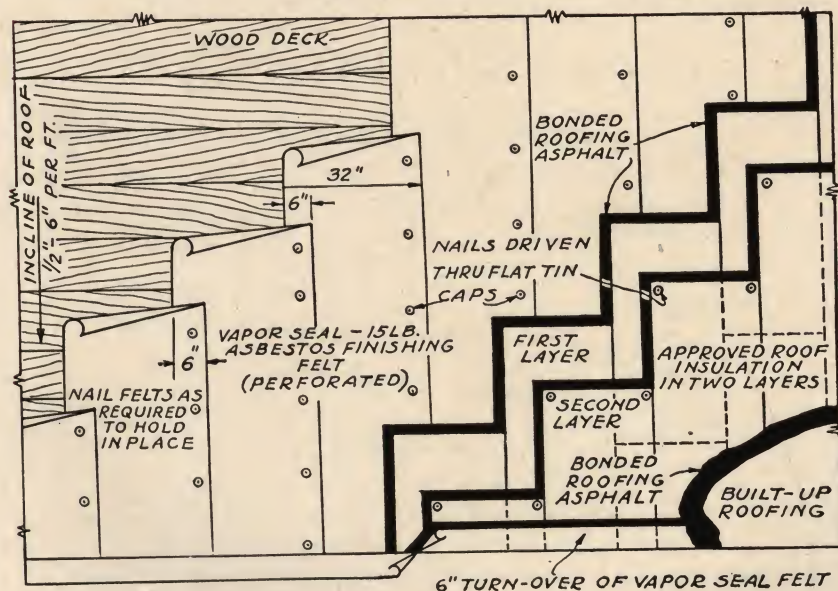
6" greater than the thickness of the insulation, and shall overhang all roof edges a similar amount.

Third: Lay Johns-Manville Roof Insulation with the long-dimension joints continuous and at right angles to the sheathing, and with short-dimension joints broken, mopping the full width under each sheet. The edges of the sheets at the joints shall be thoroughly sealed. Nail each sheet of the insulation at 24" centers through adjacent to the longitudinal edges and staggered through the longitudinal center.

If to be applied in more than one layer, succeeding layers shall be applied in the same manner as the first layer, the sheets of each layer to break joints with those of the preceding layer, with all nailing done through the top layer.

The upturned felt at vertical surfaces and roof edges shall be turned down and mopped solidly to the insulation.

General: Insulation shall not be left exposed to the weather. No more insulation shall be laid than can be completely covered with the roofing felts on the same day. At the end of the day's work, roofing felts shall be turned down over the exposed edges of the insulation and mopped solidly.



Drawing showing how Johns-Manville Roof Insulation is applied over a wood deck when a Flexstone roof is to be applied.

FOR APPLICATION OF JOHNS-MANVILLE ROOF INSULATION OVER NON-COMBUSTIBLE DECKS (Including Nailable Types But Excluding Steel)

ON INCLINES UP TO 6" PER FT.

CONDENSED SPECIFICATION

Insulation shall be Johns-Manville Roof Insulation (state type and thickness), applied in accordance with the manufacturer's specifications.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets.

Application of Roof Insulation

First: A wood strip of the same thickness as the insulation by approximately 4" wide shall be provided, secured to the roof deck adjoining all eaves, to act as a stop for the insulation.

If incline exceeds 3" per foot, roof deck shall permit nailing or wood nailing strips shall be provided.

If asphalt is used as cementing agent, coat the entire surface with Johns-Manville Concrete Primer. On gypsum, where necessary, apply two coats, allowing each to dry. If deck is of precast units, the primer shall be omitted 4" each side of all joints.

Second: Under insulation lay one ply of Johns-Manville 15 lb. Felt, lapping each sheet 6" over the preceding one, mopping the full width under each.

The felt applied under the insulation shall be turned up on, but not cemented to, all vertical surfaces to a

height 6" greater than the thickness of the insulation and shall overhang all roof edges a similar amount.

If roof construction is of precast units, the cement applied to the roof surface shall be omitted for a width of 4" each side of all joints between the units. If poured-gypsum deck, the cementing agent shall be applied by "spot-mopping."

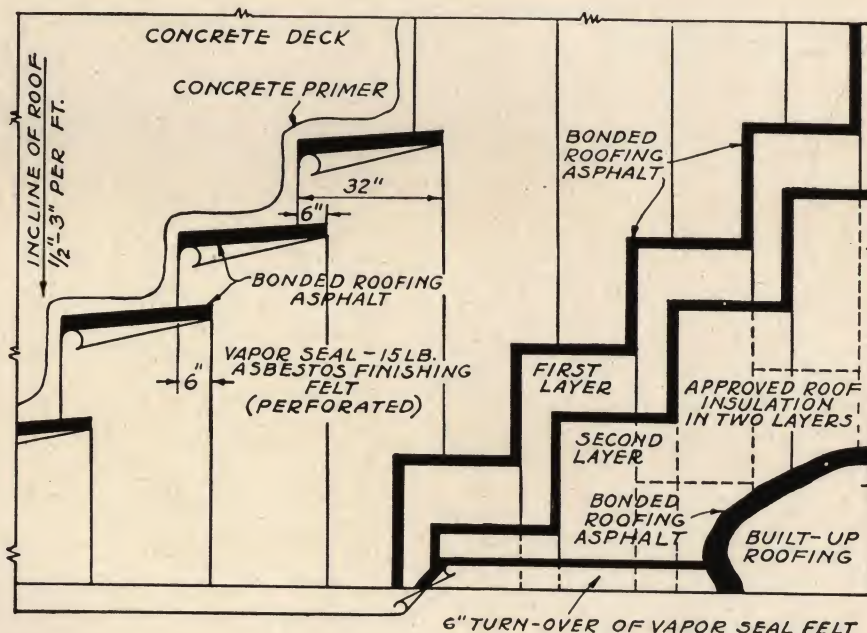
Third: Mop solid Johns-Manville Roof Insulation with all end joints broken. The edges of the sheets at the joints shall be thoroughly sealed. If roof construction permits, nail each sheet of the insulation at 24" centers adjacent to the longitudinal edges and staggered through the longitudinal center. With wood nailing strips, provided as required, nail each sheet of the insulation at each nailing strip at 12" centers.

If to be applied in more than one layer, succeeding layers shall be applied in the same manner as the first layer, the sheets of each layer to break joints with those of the preceding layer, with all nailing done through the top layer.

The upturned felt at vertical surfaces and roof edges shall be turned down and mopped solidly to the insulation.

General: Insulation shall not be left exposed to the weather. No more insulation shall be laid than can be completely covered with the roofing felts on the same day. At the end of the day's work, roofing felts shall be turned down over the exposed edges of the insulation and mopped solidly.

Drawing showing how Johns-Manville Roof Insulation is applied over a non-combustible deck (including nailable types but excluding steel) when a Flexstone roof is to be applied on deck inclines of 1/2" to 3" per ft.



FOR APPLICATION OF JOHNS-MANVILLE ROOF INSULATION OVER STEEL DECKS

ON INCLINES UP TO 6" PER FT.

CONDENSED SPECIFICATION

Insulation shall be Johns-Manville Roof Insulation (state type and thickness), applied in accordance with the manufacturer's specifications.

COMPLETE SPECIFICATION

Preparation of Deck

Roof deck shall be firm, dry and clean, and properly graded to outlets. If steel deck has not been shop primecoated or if coating is incomplete or damaged, the entire deck or uncoated areas shall be painted with Johns-Manville Concrete Primer and allowed to dry.

Application of Roof Insulation

First: A wood strip of the same thickness as the insulation by approximately 4" wide shall be provided, secured to the roof deck adjoining all eaves, to act as a stop for the insulation.

Second: Under insulation lay one ply of Johns-Manville 15 lb. Felt, lapping each sheet 6" over the preceding one, mopping the full width under each. The felt applied under the insulation shall be turned up on, but not cemented to, all vertical surfaces to a height 6" greater than the thickness of the insulation and shall overhang all roof edges a similar amount.

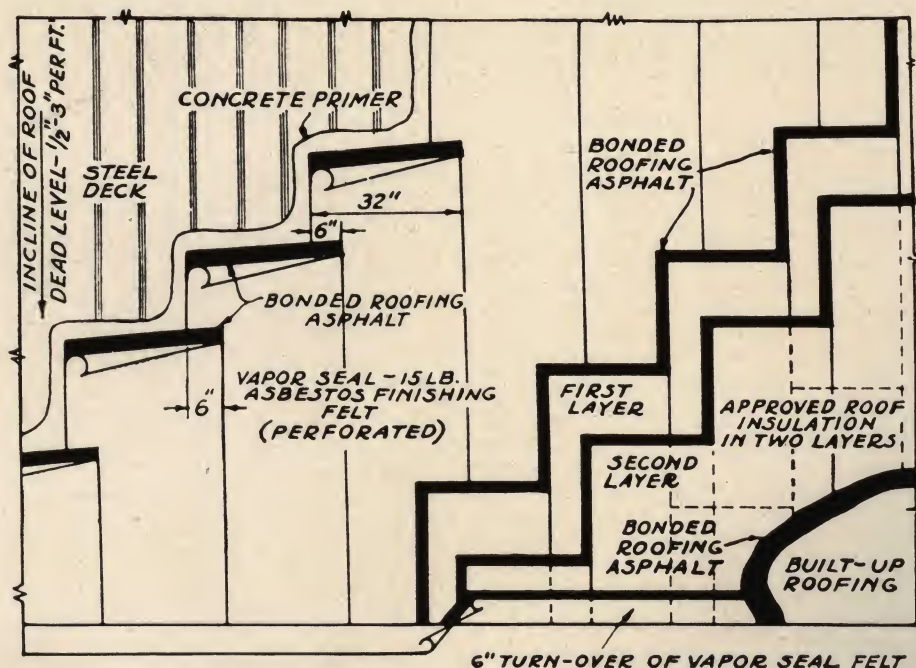
If use of felt is impractical, apply hot asphalt to underside of insulation before laying.

Third: Mop solid Johns-Manville Roof Insulation with all end joints broken, using expanding nails, self tapping screws or other approved fastening devices. The edges of the sheets at the joints shall be thoroughly sealed. If incline exceeds 3" per foot, secure each sheet of the insulation with not less than five fasteners per sheet.

If to be applied in more than one layer, succeeding layers shall be applied in the same manner as the first layer, the sheets of each layer to break joints with those of the preceding layer, with all fastening done through the top layer.

The upturned felt at vertical surfaces and roof edges shall be turned down and mopped solidly to the insulation.

General: Insulation shall not be left exposed to the weather. No more insulation shall be laid than can be completely covered with the roofing felts on the same day. At the end of the day's work, roofing felts shall be turned down over the exposed edges of the insulation and mopped solidly.



Drawing showing how Johns-Manville Roof Insulation is applied over a steel deck, when a Flexstone roof is to be applied on deck inclines of $\frac{1}{2}$ " to 3" per ft.

Corrugated Transite* Roofing and Siding

Corrugated Transite Asbestos Roofing and Siding is made of asbestos fibres and cement united under hydraulic pressure into dense, unlaminated, monolithic sheets of great strength and rigidity. It is designed for application directly over purlins or girts of skeleton steel or wood frame construction. It will not burn or rust, rot, split, crack or curl. In color, it is an attractive light gray. It is weatherproof, highly resistant to corrosion and requires no painting to preserve it.



Main building of a large aircraft plant with walls of Corrugated Transite and a fascia of Flat Transite.

It does not become warped, distorted or weakened in service; in fact, it actually strengthens and toughens with age. It offers high resistance to acid fumes and severe weather conditions and finds a wide use in industrial plants, as well as in hospitals, libraries, office buildings, railway stations, machine shops, garages and residences. Its easy workability and the speed with which the large units can be erected are but two of its many advantages.

Transite can be readily drilled or sawed and is secured with bolts, screws, clips, etc., designed for that purpose. Special shapes of the same material for use as ridge roll, corner roll, louvres, etc., are available.

Sizes—Sheets are furnished 42 in. wide in lengths from $\frac{1}{2}$ ft. through 11 ft. in $\frac{1}{2}$ -ft. increments. They are approximately $\frac{7}{16}$ in. thick at ridges and valleys of corrugations and approximately $\frac{5}{16}$ in. thick at the slope. The corrugations are 4.2 in. The over-all thickness of the sheets is $1\frac{1}{2}$ in. Approximate weight is 4.1 lb. per sq. ft.

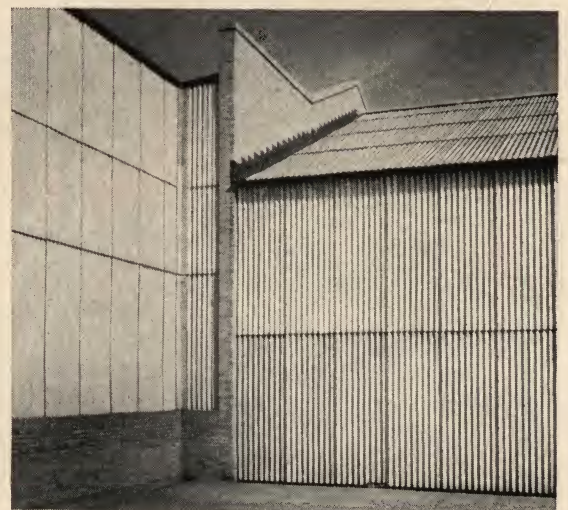
Application—See details on following page. Transite may be applied over roof purlins spaced on not greater than 54-in. centers (minimum roof pitch 3 in. per

foot), and on siding girts not over 66 in. center to center. Sheets are laid with a 6-in. end lap and a one-corrugation side lap, providing an exposure of 37.8 in. Write for complete details.

Flat Transite* Sheets

Flat Transite has the same characteristics as Corrugated Transite, and is exactly the same material except for form.

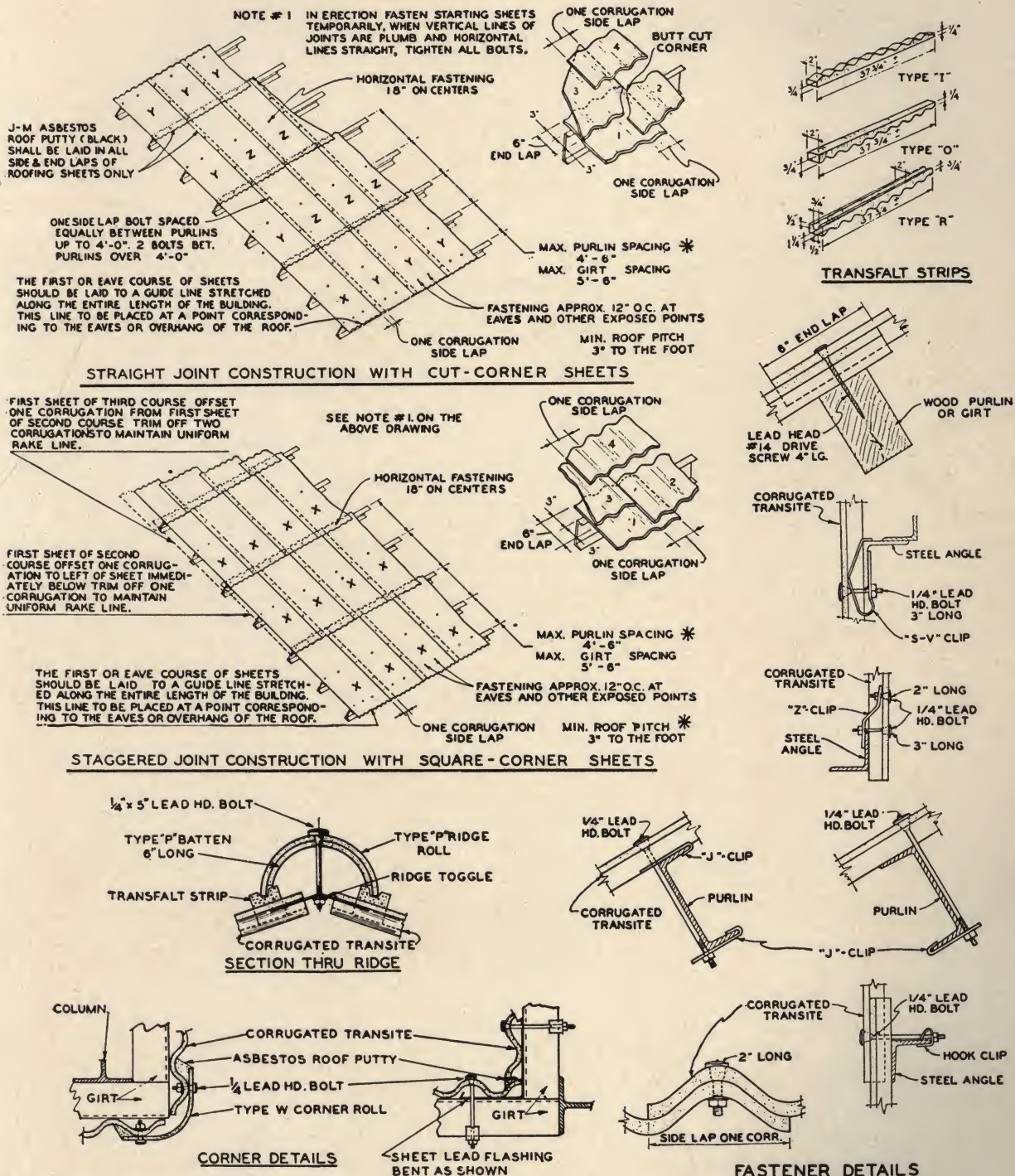
Flat Transite weighs approximately 124 lbs. per cu. ft. Sheets are furnished in sizes 36 x 48, 42 x 48, 48 x 48, 42 x 96 and 48 x 96 in. from $\frac{1}{4}$ in. to 2 in. thick.



In addition to possessing many structural advantages, Transite is attractive in appearance. Note the neat internal corner construction and the workmanlike step flashing at the brick wall.

*Reg. U. S. Pat. Off.

Construction details for 4.2" Corrugated Transite



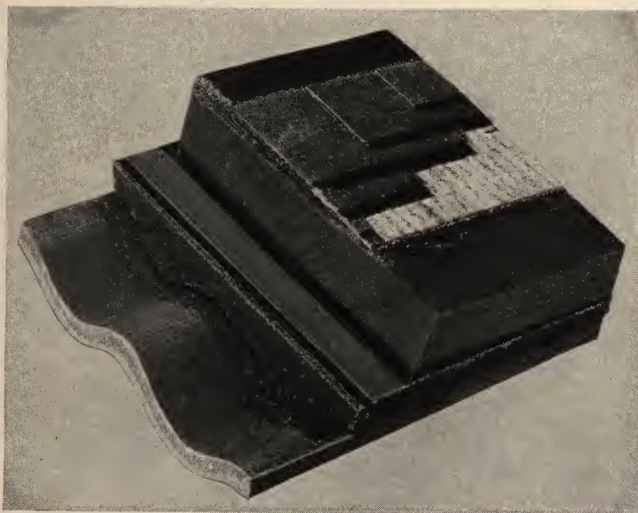
* IN AREAS WHERE STRUCTURAL DESIGN PERMITS ACCUMULATION OF SNOW AND ICE TO CAUSE EXCESSIVE LOADING, REDUCE PURLIN SPACING TO 45" (OR LESS IN EXTREME CASES) AND INCREASE THE MINIMUM ROOF PITCH TO 4".

Patents No. 2,015,129, 2,021,929 and 2,169,376
Patented Canada 1937

The J-M Insulated Rot-proof Roof

(Patented)

The J-M Insulated Rot-proof Roof was originally designed to withstand severe moisture, heat and acid conditions encountered over the machine room in paper mills. It is equally suitable for other types of industrial buildings where similar conditions prevail, and many eminently successful installations are now in service.



A section of the Johns-Manville Insulated Rot-proof Roof. For identification of the component parts, see drawing below.

Fastened directly to the steel purlins, its erection presents no unusual problems and makes it particularly well adapted to skeleton steel construction.

Regardless of how carefully a wood deck may be constructed, under severe moisture conditions vapors will penetrate the planking, condense on the underside of the built-up roof and rot will start at the top of the wood deck, unseen, and work down. The sectional view of a paper mill roof after six years of service (shown in the illustration below) demonstrates this disintegrating action.



Sectional view of a wood deck over a paper mill, rotted from the top (under the roofing) down.

To prevent such roof failures, the J-M Insulated Rot-proof Roof was designed. The approved roof insulation, of the proper thickness, prevents the depositing of moisture under the calculated humidity conditions. The impregnated, asbestos-cement Transite deck, which cannot rot, serves as a lasting factor of safety for unforeseen temperature differences. While the problem of rot, alone, can be eliminated by the use of concrete, the others of condensation and roof-drip remain. The J-M Insulated Rot-proof Roof meets all the difficulties satisfactorily.

Advantages of the J-M Insulated Rot-proof Roof

(1) *Water-resistant on Both Sides*—Neither the corrugated leveling fill, nor the J-M Built-up Roof will absorb moisture. The entire construction is inherently water-resistant.

(2) *High Insulating Qualities*—The thickness of insulation is varied, according to conditions, as may be required to prevent condensation. The heat transmission through this roof is less than one-third that through wood of equal thickness. The need for special air-conditioning or ventilating systems is reduced through its use. The insulation value of the J-M Insulated Rot-proof Roof will not be impaired during long years of service.

(3) *Fire-Resisting*—The materials as they are employed in the J-M Insulated Rot-proof Roof afford a highly fire-resistant construction.

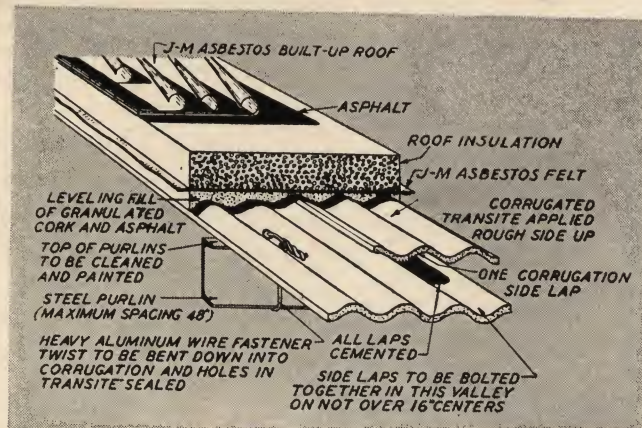
(4) *Rot-proof*—Because of its thorough water-tightness, no moisture can penetrate the J-M Insulated Rot-proof Roof. The entire construction is rot-proof.

(5) *Acid-Resisting*—The Transite under-surface and the J-M Asbestos Built-up Roof are unaffected by acid fumes encountered in paper mill and other industrial services.

(6) *Floating Construction*—The roof is so secured to the steel work that both are allowed to move independently, providing a floating roof construction.

(7) *Light Weight*—The construction, exclusive of the steel work, weighs about 8 lb. per sq. ft. plus approximately 1½ lb. per sq. ft. per inch thickness of insulation used.

(8) *Low Maintenance*—The J-M Insulated Rot-proof Roof can be depended upon for many years of service with practically no maintenance.



Insulated Rot-proof Roof construction details.

The J-M Transite* Insulated Roof

Where roof insulation is desired, but condensation conditions are not severe, a less expensive construction than the Insulated Rot-proof Roof, known as the Transite Insulated Roof, has given satisfactory service under widely varying climatic conditions. This construction uses, as the roof deck, Corrugated Transite over which is applied a minimum of two 1/2-in. layers of J-M Roofinsul, stapled or cemented together, which serves as a base for a standard J-M Built-up Roof.

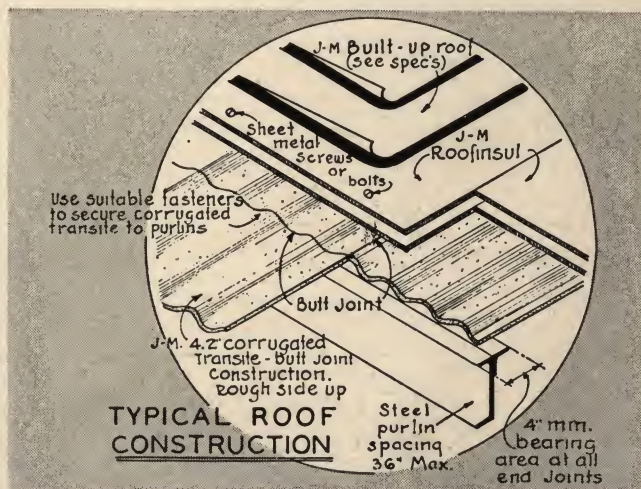


Three construction stages of an Insulated Roof showing Corrugated Transite, Insulating Board and Roofing Felts.

The Corrugated Transite, laid rough side up, is bolted to the purlins with butt joints at all edges, and a minimum of two 1/2-in. layers of Roofinsul applied over it with all joints staggered, the three layers being bolted together as a unit deck. Large washers are used under the bolt heads and the bolts drawn tightly enough to embed the heads slightly and leave a flat upper surface. Over the Roofinsul, the type of J-M Built-up Roof selected is applied in accordance with standard J-M specifications. Detailed construction drawings of the Transite Insulated Roof are available on request.

*Reg. U. S. Pat. Off.

The advantages of this roof lie in its initial economy compared with other types which are used when condensation conditions are severe. It should be remembered that about one-third of the heat lost through uninsulated constructions in winter passes out through



Construction details of Transite Insulated Roof.

the roof. In summer, two-thirds of the entering heat reaches the inside through the exposed roof area.



Transite Insulated Roof under construction.

In addition to the more comfortable working conditions which are attained through the use of insulation, the reduction in heat transmission during the winter months usually affords measurable savings in fuel.

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